Dr. F. A. Summer.

Sortops Institution,

La Jolia, Calif.

Dear Dr. Summer:

This has been about my first opportunity to reply to your last letter. I know that it was with a feeing of relief that you finally freed yourself of the Bay Report. and the "fighting" that marked its progress.

I shall see that the officers concerned receive copies, with the exception of Captain Soule, to whom I understand you have mailed one. I shall also send Miss Pathbun, Bartsch. Chark, Kincaid, Smith and Weaver copies.

We had quite a successful cruise, all teld, with respect to the information desired by the Bureau, but with regard to attendant scientific results, - I have in mind the observations desired by McKwen - we accomplished mil. I suppose you heard that the Deputy Commissioner requisitioned the ALBATROSS for about six weeks this past summer for an Alaskan inspection?(?) craise. That period Rankin and I put in at Respect, having at our disposal a chartered launch. At present I am working up our results.

The war? I hope the Germans win!

Rest will be, but I hope to see you when you return to Borkeley in November.

mother, Mrs., Frozense and lost, but not least, the beby!

Sincerely,

Scripps Institution for Biological Research,
La Jolla, Calif., June 20, 1914.

Mr. Waldo Schmitt,

Naturalist U.S.S.Albatross,

Pacific Station,

Seattle, Washington.

Dear Schmitt:-

I received your letter regarding the disposal of the Molluscs sometime ago. I spoke to Dr. Merriam regarding it and I suppose that he has written the United States Museum regarding it.

I have not gotten along as far as I had hoped with my paper. Had much of the drudgery done and am now waiting for the proofs of Sumner's paper.

You may be surprised to note that I am here. I expect to be at the Station for three months and finish my work. At present I am curator of the Museum here. Tell Johnson that I wish he were here to help me determine the seventy-five species of fish that I have to work with.

I am able to enjoy myself a little in the surf and to take an occasional walk.

I am very busy now and will not write more tonight.

Your friend,

E. L. Pachar

Hotel Frye,

Seattle, Wash.,

June 19, 1914.

My dear Prof. Louderbach:

time, and I am only too glad to be able to tell you that I can, and will, pay the whole amount. As this is the end of the fiscal year, he may have to wait a couple of weeks in July for his check.

Rankin and I have been detached from the ship, to look after oysters in Fuget Sound, while Johnston goes with the ship to Alaska. The Deputy Commissioner is making a cannery-inspection tour.

The halibut-investigation and the consequent taking of bottom-samples will be resumed after July twenty-fifth. You certainly aroused my interest in bottom-samples; I shall take good
care that you get a good series of them. And when I return to
Washington, I shall arrange with the Bureau that particular attention be paid to that phase of the ship's operations.

I wish you the best kind of luck, and hope that the Boxers and bandits don't get you; but Uncle Sam has a long arm.

Don't fail to have a good cathartic with you, and don't eat eat anything uncorked. That is the great danger in China, particularly with respect to vegetables, lettuce, radishes, onions, etc., and salads. The Chinese use human faeces for fertilizer, and are infected to a very great extent with some "nasty" parasites

I expect to arrive in Washington sometime in December. Maybe

I'll freeze, but nevertheless, my very best wishes to you.
Sincerely,

Prof. G. D. Louderbach,

Becon Mali.

Berkeley, Calif.

Department of Commerce and Cabor

Hotel Frye,
Seattle, Wash.,
June 15, 1914.

Dear Dr. Summer:

It was hardly fair for me to pass along the question with regard to the current-meter, but I really could not give them a very satisfactory answer.

I suppose the firm of Gurley requested a testimonial, in view of the fact that they supplied you with a cut.

Though I didn't expect to see Dr. Kofoid at the time I wrote you, I met him in Seattle at the time of the meeting of the Biological Society of the Pacific.

Can't you get enough influence together, to over-rule the dissenting-member of the editorial-committee? After all the extra work we did to please him with regard to drawing up the tabular form of dredge-table, I think it is a "dirty trick". A hundred reprints, more or less, after the proof is out, make but very little difference in the cost. Should you be allotted only two hundred copies, all told, I'll be content with ten, and I know Johnston willbe. The people I shall want to reach, outside of the regular mailing-list and the one I sent you, are very few indeed.

Yes, I saw Dr. Everman the day before we left San Francisco, and I was forward enough to tell him that at some future date he might need a curator (assistant understood) in Zoology, I would like to be considered. It's a lame confession to make, I know, but this coast has taken a "holt" on me, and it is with a certain regret that I leave. But then, of course, we never know what the future has in store for us.

No. 205 Ed. 7-2-12-400,000

Department of Commerce and Labor

This cruise has been one series of accidents and rough weather. On our last run out of port, one of the set-screws of the rudder-post stuffing-box worked loose, and in so doing put such a strain on the remaining three, that they threatened to carry away, too. This necessitated our immediate return to port, so here we are. But that is not the worst of it! The ship has been turned over to "Blister", as we call him, Jones, for the purpose of making a tour of Alaska---inspection?

Rankin and I have been fired ashore, to hold down some scientific investigation or other, and this resolves itself into a reconsistance of the oyster-beds of the Sound region, the Bureau co-operating with the State Commission, represented by Dr. Kincaid.

The ship returns late in July to make two more trips over the Oregon halibut-banks. When that has been done, we shall come back to Sausalito--- about the middle of September.

Remember me kindly to Mrs. Sumner, Madame Sumner, Florence and the baby.

With my best wishes,

U.S.S.ALRATROSS. Seattle Wesh. May 19, 1914.

Dr. F. A. Sumner.

Vertebrate Museum, Univ. of Celifornula,

Berkeley, Calif.

Dear Dr. Summer:

I am glad that you had such a successful "cruise."
We likewise covered a lot of ground in spite of the rough
weather and scarcity of fish. In truth, I did make quite
a show of myself on that run outside the Cate, but on this
trip even in the roughest weather I've had no trouble at all.

On one occasion we picked up about two fest of very sandy mud of the consistency of rubber. Sand, you know, is very difficult of penetration. On another occasion six inches of hard pan were brought up. Of course this last sample did not extend into the paper tube. This bottom was almost like rotten stone; it hurt one's flagers to crumble it. At no time has the closing device failed to function. The upper rod we have shortened to shout eighteen inches, because the large weight we suspended it beneath while lowering it by means of the large winch put a kink in it. That was prior to the time of putting the cable on the small winch. Of late we have been using the bottom sampler with it, and without any additional weight. Used with a small winch

and light cable I doubt if there will be anything to surpass

With regard to our orange-peel bucket, I cannot report any such measure of success. Several times I have attempted to bring up bottom in one-hundred fathoms, but have drawn a blank each time. This may be due to one of several causes. Bither, because of the strong undercurrent, of which we have had ample evidence, tilting the apparatus over on one side to such an extent that the release was tripped and the bucket closed without gripping the bottom; or as Dahme claimed, the bettom was too recky, that is, smooth hard rock bottom from which we could pick up nothing. This I am inclined to doubt. The former explanation is the one I offer as a reason for our non-success. Of course the question arises in your mind concerning the washing out of the contents, but that I have very sordous doubts about. In the illest place, I had a new conves ecver built after the pattern of the old one, and in the second place, the bucket was absolutely clean, with one exception of a single rook 6 x 8 x 4 inches. But to set this last doubt entirely at rest, if you have one, I shall have another cover constructed which will extend well down over the blades of the bucket and fastened firmly thereto through small holes which I propose to drill through the upper part of each blade to permit the attachment of suitable lashings. At the

top, this cover will also be firmly lashed to the head of the bucket frame and sufficient flap cover windows will be provided to prevent the rush of water from bursting the cover while the apparatus is being lowered.

I am certainly glad to hear that the report has made such splendid progress eventually. And now regarding the number of reports you so kindly want to present me with. Dr. Summer, I had so little to do primarily with the actual getting of the report and also have such a limited circle of scientific acquaintance that 25 copies would be more than ample for me. Johnston has also agreed that such a number will be sufficient for his needs also. This I am glad to say will give you a larger number than your generosity has permitted you to retain. Please take them; you are very welcome to them.

Those to whom I should wish copies sent are doubtless on the University exchange list:

Miss Rethbun

Dr. Bandsch

Austin H. Clark

Dr. Kinceid (Dept. Zool. Univ. of Washington), Sectile.

Dr. Smith do do

Dr. Wesver (Dept. Paleo. do

and the various graduate students in Bast Hall with whom I became acquainted during our stay in Berkeley.

The officers and one or two members of the crew on the ship who were on board at the time of Survey are very anxious to receive copies:

Captain H. B. Soule, I do not need to mention.

Lieut. L. B. Porterfielf, Chief Bostswain August Rettig.

Bostswain M. R. King.

Chief Machinist A. D. Devine.

Coleman too should be presented with several coipes for his share in taking the manuscript, and if you could send me six copies over and above my twenty-five I should like to give them to Kellers, Arnkil, Cook, DeLong, De Vries, and Dahme.

Other than the above I can suggest no other names that you will not have on your or the University Lists.

I have taken the liberty of asking for your opinion on the Price current meter. I have recently received the following request from the Burcen:

Mou are directed to send to this office a statement as to the success abtendant upon the use of the Price current meter now on the Albertose. Has it any serious defects that militate against its use or accuracy? Do you consider it better adapted to bey or river work in relatively shallow water than the Ekman or other forms in use?

(Sed) Levils Rodeliffe Acting Assistant in Charge. Scientific Inquiry."

Of course you cannot compare its efficiency with that of the Elman or other meters, but neither can I, as I have seen only the Price meter in action. Would you also be so kind as to render me Dr. Kofoid's opinion on the matter as far as he is able to give it. If not causing you too much great an inconvenience please answer this last paragraph upon the receipt of this letter, as I wish to write to the Bureau ere we sail again on the morning of the twenty-sixth.

Give my very best wishes to Lrs. Summer and the buby. Florence and her grandmother.

Did you notice the amountment of the examination Remin took for the appointment to the ALBATROSS, "none but unmarried men will be appointed to vessels"? I wonder if your resignation followed so shortly by mine (I haven't submitted it yet), was the cause of this provision?

With my best regards,

Sincerely,

THE SCRIPPS INSTITUTION FOR BIOLOGICAL RESEARCH OF THE UNIVERSITY OF CALIFORNIA

LOCATED AT LA JOLLA NEAR SAN DIEGO, CALIFORNIA



Berkeley,

LA JOLLA, CALIFORNIA,

April 24,1914.

Dear Schmitt:

Thank you for your letter and inclosed data. I have had in mind writing to you for some days. I returned home last Saturday (the 18th.) laden with plunder. That is, I brought about 100 living mice of the kind that I particularly went for, together with some 30 skins. Also sent Grinnell a lot of specimens of various species, living and dead.

I have worked your data (temperature, salinity and the record of the bottom-sample trip) into the report. Turned over the galleys to Flinn to-day. I am glad to know of the success of the sampler in deep water, but I hear from a reliable witness that you were "as sick as a dog"! Did you know that the salinity for the surface water was only about 1/3 that at the same stations in February, 1912? For the bottom it was about 4/5. The temperature, on the other hand, differed by only $\frac{1}{2}$ degree.

By the way, we must decide as to the number of reprints that we want. Ordinarily, an author is given 200. Allen says that, as there are four authors here concerned, we can probably have a larger number (perhaps 300, or even more). A large part of the zoologists that we shall want to reach are doubtless off the regular mailing list of the University, and there will be no need of duplicating. On the other hand, the geologists will not be reached. For this reason, I am disposed to allow Louderback a larger number than I personally receive. He will need these for each person

to whom he sends his later paper. If the University Press allows us 300, are you and Johnston willing, therefore, to let Louderback have 100 copies and each of the rest of us have 67 copies (in addition to those mailed by the University)? I should, myself, be quite content with that arrangement.

Also will you and J. please send me at once a list of the persons (non-scientific friends excluded) to whom you wish to send the paper? I can then check off those that are on the University mailing list, as well as those on my own, and return it to you. The paper ought to be out in a couple of weeks.

Mrs. Sumner was much pleased to have seen Miss Stumm and yourself. Do it again when you come back.

I am awfully sorry that I did not have a chance to see the boat before she went north. I haven't seen her since she looked like a scrap-heap.

Remember me cordially to Johnston; also to Porterfield and whoever of the Navy people survive and remember me. Probably, by the time this reaches you, you will all have been sent to Mexican waters to shoot up a lot of pasteboard forts and mow down a few hundred Indians -- all for the glory of the flag!

Sincerely yours,

* Coleman, too, if he is with you. Is he?

T. S. S. ALBATROSS.
Sectile, Wash.
April 20, 1914.

My dear Eaptain Soule:

My first opportunity of mailing you the information you asked of me has been here in Scattle. In order that you might get it all in condensed form, I have enclosed a copy of the summary of Dr. Summer's report, which you might keep until the published report is out.

In order that you might compare the results of our last check run after the rainy season with the results of the previous year. I have included the following few figures which I have numbered in accordance with the sections in Dr. Sumner's summary, with which they are to be compared:

	Sur	mazy, 191	2-15	Check, 1914
Section 12 Mean Salinity of entire Bay -		27.48	elegative.	16.81
Highest single salinity figure at station neares Golden Gate Lowest, in Carquines Str	ALC: N	33.27 3.25		30.57 0.49
Section 10 West salinity ileans for surface samples				10.02
Mean salinity figure for bottom samples	***	28.19		25.60

the salinity of the bottom water was practically unaffected by the heavy rains, but that the mean salinity for the surface water in the wet year (1914) was brought down to considerably less than half (little more than a third) the mean surface salinity of the two preceding years. Other things

being equal, particularly temperature, this is what one would naturally expect. The fresher, less saline water, composed chiefly of the flew off of the rivers, slightly admixed with ocean water by the tidal changes, would form a layer over the denser, more saline ocean water brought in with the tidal flow. The greater the salinity, the greater the specific gravity will be; consequently the fresh water will tend to keep on top of the more saline lower water layer, and hence have practically no effect upon it.

If there are any other points regarding which I may be able to look up for you I shall be only too glad to do it. because I am not sure that what I have given you is just what you wanted.

There are just a few more paragraphs which I wish to quote, from the end of the chapter on Temperature of the "Report?.

I think they are of more than passing interest:

"The mean latitude of --- Chesapeake Bay is very nearly the same as that of San Francisco Bay. The mean annual water temperature for the former Bay is 14380° C. (57.89°F.). that for the latter being 12.91° C. (55.23° F.). The chief difference between the temperature conditions of these two bodies of water lies, however, in their respective annual ranges. In Chesapeake Bay this amounts to 22.12°C. (59.82° F.), while in San Francisco Bay it is not much more than a third (38%) as great, being 8.55° C. (15.03° F.).

Thus the equable climate for which the California coast is famous, is reflected in (we should rather day due to) the equable temperature of its coastal waters.

In some localities of the California coastal region we behold the anomaly of familiar garden fruits and vegetables failing to ripen where palms and other tropical plants flourish. The ripening of the former is retarded by the low provailing summer temperatures, while the perennial vegetative growth of the latter/ is rendered possible by the absence of winter frosts. In the same latitudes, on the opposite side of the continent, tomatoes and Indian corn ripen as a matter of course, while palms and agaves cannot be grown out of doors.

It is more than possible that the distribution of many marine organisms is similarly conditioned. It would be surprising if the occurence of low temperatures during the period of reproduction did not limit the northward distribution of various species along the California coast, despite the relatively high annual mean and the absence of really cold waters during the winter. It is hoped that information bearing upon this point will be brought to light by those who are investigating the biological collections made in the course of the present survey."

I trust both of you arrived safely in Washington and in good health, and found Donny just as well. Did he remember

Mr. Soulo? Please give her my very best regards and tell her I have written my nother in this very mail.

you. The departure from Sausalite was held up one day because of a leak which developed in the condenser. We lost half a day in a sou-caster on the way up, and now we lose another day repairing a break which occured in the piston of the flushing pump. I sincerely hope this will be our last delay, but one can never tell. Though not a Christian Scientist I am holding real good thoughts over the ALBATROSS to keep her up to the mark.

East did the doctors at the Level Hospital have to say? And how is the "climate" in "schington?

I would that I had Alvina here with me, for then we could both join in sending you our best regards and 'oodles of good luck.

Sincerely.

684c. IN REPLY TO LETTER NO.

Department of Commerce and Calum BUREAU OF FISHERIES Washington

**COMMISSIONER OF FISHERIES,
WASHINGTON, D. C."

April 13, 1914

Mr. Waldo L. Schmitt, Naturalist,
Fisheries Str. Albatross,
Seattle, Wash.

vised that I knew that the matter of sending the Albatross to Alaska was under consideration, but I understand that nothing definite in the matter has yet been decided. It is my understanding that the project is to make one trip about July, and I am advised that the weather at that season is such as would make it difficult to carry on the fishery investigations at that time. I had not understood that to be the fact from previous correspondence with the Albatross, or from my consultations during my visit to the vessel last fall.

You are justified in thinking that you should have received advice in regard to the literature for which you asked. As I have already advised you, this matter was turned over to the Librarian, and I supposed that it had been attended to.

The office is advised that the wire has reached, or shall have reached Baltimore, but it has not been possible to get track of it, although its release from customs

duties has been provided for. Every effort will be made to secure its despatch to you at the earliest moment.

I trust that the investigation on which you are starting will prove to be satisfactory both to you and to the Bureau.

J.F. Mom

Assistant in Charge Scientific Inquiry.

841

Department of Commerce and Cabor

BUREAU OF FISHERIES

Washington

December 8, 1913., 191-

Enc.

GENERAL APPOINTMENT

DEPARTMENT OF COMMERCE APPOINTMENT DIVISION WASHINGTON

December 5, 1913.

Mr. Waldo L. Schmitt,

Through the Commissioner of Fisheries.

Sir:

fou have been appointed, subject to taking the oath of office,
Naturalist
in the service of the Bureau of Fisheries on the Steamer "Albatross,"
at a salary ofOne Thousand Eight Hundred dollars per annum ,
effective on the date on which you enter upon duty in the above-
mentioned position.

(By promotion from general assistant at \$1200 per annum.)

By direction of the Secretary:

Respectfully,

E

Ghief of Appointment Division.

Appropriation: Salaries, Bureau of Fisheries.

Vice: Francis B. Sumner.

Legal Residence: District of Columbia.

11-3692

Department of Commerce and Taker BUREAU OF FISHERIES

Berkeley, Calif., August 26, 1913.

Dr. Hugh M. Smith,

Commissioner of Fisheries,

Washington, D.C.,

Dear Sir,

Dr. Summer has told me that he has handed in his resignation to the Bureau. Should this be favorably acted upon and should the Bureau, in due time, take up the matter of filling the consequent vacancy, I should like to be considered as an applicant for the position.

I have been with the ship for the greater part of the last two and a half years. During that time I have taken part in the Lower California Cruise and have personally participated in the first two trials made on the last halibut survey. I have spent three months in Alaska during the salmon run at Chignik, in the summer of 1911, and since that time have been with the present Survey of San Francisco Bay, and, of course, have taken an active part in it.

I hold the degree of B.S. from the George Washington University. My major subject was zoology.

Though I do not wish to seem forward, I do feel that with my traing and experience on the ship, I am capable of efficiently filling such a position, as is that of Naturalist on the Albatross. Hoping that you will pardon the "formal-personal"

character of this letter, I am,

Sincerely,

Walder Sahmitt.

Los Angeles Zoological Park and Aquarium

UNDER THE MANAGEMENT OF

The Los Angeles Zoological Society

CHARLES LINCOLN EDWARDS, PH. D.,
DIRECTOR

LOS ANGELES, CALIFORNIA, Aug. 26, 1912.

Mr. Waldo Schmitt,
U.S.S. Albatross,
Sansalito,
California;

Dear Sir,

The blister pearls are found especially in the red abalone and rarely in the black abalone. I have produced such blister pearls in my experiments at Venice. Free pearls are round but not often.

For what purpose do you wish to collect abalones on a large scale? The Fish and Game Commission circulars will give you the closed and open seasons.

For nearly a year the abalone investigations of the Fish and Game Commission have been under my charge and I have much material ready for publication. If you will let me know the lines of work you intend taking up it should be possible for cooperation between the Bureau of Fisheries and our own State Commission, while a duplication of research, where there is so much of importance to do, would be both unfortunate and foolish.

Please give my warm regards to Dr. Sumner. It will be a pleasure to see either of you if you come to Los Angeles.

Very sincerely,

Charles L'Edwards

Department of Commerce and Labor BUREAU OF FISHERIES

Chignik Lageon, Alaska, September 7, 1911.

Mr. Waldo L. Schmitt,

Assistant, Bureau of Fisheries, Chignik Lagoon, Alaska.

sir:

The fishing season at this place having ended and your services no longer being required by this party, you are hereby directed to proceed to San Fransisco, California, taking passage hence by the ship Star of Alaska, of the Alaska Packers Association service.

Upon arrival in San Francisco, call at once at the office of the Alaska Packers Association, where orders from the commander of the steamer Albatross regarding your further movements have been requested for you. In case no instructions from the Albatross are found here, you will endeavor to locate the vessel at the earliest opportunity and communicate with her commander by telegraph. In the meantime you should keep the Bureau informed of your whereabouts and movements, advising the office promptly of your arrival and any change of address.

Your bill of expenses with the Alaska Packers Association will continue at the usual rate, of Three Dollars per day, from the date of last settlement, August 31, until your departure from the Star of Alaska, and should be settled in full, as one item of a sub-voucher, at the San Francisco office of the company.

2. HCF--Schmitt.

Your expense accounts beginning September 1 should be rendered through the pay officer of the Albatross, or direct to the Bureau.

Very respectfully,

N. C. Jasely

Assistant Alaska Salmon Agent.

594 c. IN REPLY TO LETTER NO.

Department of Commerce and Cahor bureau of Fisheries

Washington

April 22, 1911.

Mr. Waldo L. Schmitt,

General Assistant, Steamer Albatrosa,
San Francisco, Cal.

Sir:

Upon the arrival of the Albatros at Chignik Bay it is desired that you assist Mr. H. C. Fassett with the reconnoissance of the Chignik lakes and stream. Upon the completion of this work and the departure of the Albatross for the halibut survey you will be detached from the ship and remain at Chignik as assistant to Mr. Fassett who will conduct certain investigations there during the summer.

Upon the completion of this work and the receipt by you of instructions from Mr. Fassett you will return to the ship.

Your necessary expenses of travel and subsistence will be refunded to you on presentation of proper vouchers.

Respectfully,

Through the

Commanding Officer.

Commissioner.

Onder (B.W. E) dates Chril 22-11.



Department of Commerce and Cahor

BUREAU OF FISHERIES

Washington

"COMMISSIONER OF FISHERIES,
WASHINGTON. D. C."

February 16, 1911.

Mr. Waldo L. Schmitt.

General Assistant, Steamer ALBATROSS.

Washington, D. C.

Sir:

As it is expected the "Albatross" will start on an expedition to Lower California about the 21st instant, you are directed to join the vessel, report to the Commanding Officer, and assume your suties as general assistant. During the above mentioned cruise the scientific work of the vessel will be under the direction of Dr. C. H. Townsend, and you will be guided by his instructions. On the conclusion of this work you will be furnished with further instructions, as necessary, as to your duties on board.

Respectfully,

Acting Commissioner.

or 22 and Franklin Sto. Seo bellan Wall angelon, god.

4/13 mme

Department of Commerce and Cabor

No. 139

Mr. Walde L. Schmitt/
Bureau of Fisheries,
Washington, D. C.

BUREAU OF FISHERIES

Washington

Feb. 16, 1911.

Sir:

You are hereby directed to proceed by the shortest and most direct route from Washington, D. C., -----to Sausalite, California, or San Diego, California,

and such points in the immediate vicinity thereof as may be necessary for the purpose of joining the ALBATROSS, the duty pertaining to the work of the Steamer ALBATROSS to which you have been detailed in Washington having been completed

and on completion of this duty to return to -----

On the presentation of proper vouchers you will be reimbursed from the appropriation "Miscellaneous Expenses, Bureau of Fisheries, 1911," subhead " Scientific Inquiry ," for your actual and necessary expenses while engaged as above.

You are also authorized to make such small purchases of articles of equipment and supplies, and to employ such temporary help as emergency conditions may require for the efficient conduct of the above work.

Refer to the number of this order in your monthly account taking up expenses incurred and upon the face and coupon of Government requests for transportation issued for travel in connection therewith.

Respectfully,

Acting Commissioner.